APPENDIX A

Jonathan Dinsmore

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Professional Experience

Senior Director of Cell Transplantation Research, 3/99 - present
Diacrin, Inc., Charlestown, MA
Director of Cell Transplantation Research, 1/95 – 3/99
Diacrin, Inc., Charlestown, MA
Principal Investigator, 1/93 – 1/95
Diacrin, Inc., Charlestown, MA
Research Scientist, 7/92 – 1/93
Diacrin, Inc., Charlestown MA

Education

Massachusetts Institute of Technology, Cambridge, MA
Post-doctoral fellow. Research Topic: "Alteration of gene expression during development with antisense RNA expression." Center for Cancer Research and Department of Biology. Laboratory of Dr. Frank Solomon, 7/89 – 6/92.
Dartmouth College, Hanover, NH
Ph. D. Biology. Thesis Title: "Biochemistry of the isolated mitotic apparatus." Presidential Scholar. Graduation: 6/89
Boston College, Chestnut Hill, MA
B. S. Biology, Cum Laude, Graduation 6/83

Additional Professional Activities

United States Antarctic Research Program, Palmer Island, Antarctica, Research Student. "Biochemical analysis of tubulin proteins from Antarctic ice fish."(1/86 – 4/86)

Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, Research student "Advanced Techniques in Molecular Biology." (6/87 – 7/87).

Woods Hole Marine Biological Laboratories, Woods Hole, MA, Research student. "Biochemistry of the isolated mitotic apparatus."(6/85 – 9/85).

University of Washington, Friday Harbor Labs, Research student. "Invertebrate Zoology and Invertebrate Embryology."(6/84 – 9/84).

Membership in Professional Associations: American Society for Cell Biology, New York Academy of Sciences, American Society for Microbiology, Society for Neuroscience, American Society for Neural Cell Transplantation

Patents and Patent Applications

Issued Patents:

U. S. Pat. Number 5,593,673: "Isolated porcine pancreatic cells for use in treatment of diseases characterized by insufficient insulin activity."

U. S. Pat. Number 5,629,194: "Isolated porcine pancreatic cells for use in treatment of diseases characterized by insufficient insulin activity."

U. S. Pat. Number 5,677,174: "Isolated porcine pancreatic cells for use in treatment of diseases characterized by insufficient insulin activity."

U. S. Pat. Number 5,961,972: "Isolated porcine pancreatic cells for use in treatment of diseases characterized by insufficient insulin activity."

World Pat.no# WO96/12794: "Isolated porcine pancreatic cells for use in treatment of diseases characterized by insufficient insulin activity."

U. S. Pat. Number 5,919,449: "Porcine cardiomyocytes and their use in treatment of insufficient cardiac function."

U. S. Pat. Number 6,140,116: "Isolated and modified porcine cerebral cortical cells."

Pending Applications:

U. S. Application Number 08/333,076: "Embryonic stem cells capable of differentiating into desired cell lines."

U. S. Application Number 08/554,779: "Porcine neural cells and their use in treatment of neurological deficits due to neurodegenerative diseases."

U. S. Application Number 08/551,820 "Porcine cortical cells and their use in treatment of neurological deficits due to neurodegenerative diseases."

U. S. Application Number 09/163,684 "Transplantation of neural cells for the treatment of chronic pain or spasticity."

U. S. Application Number 09/110,772 "Improved methods for storing neural cells such that they are suitable for transplantation."

U. S. Application Number 09/163,272	"Porcine spinal cord cells and their use in spinal cord repair."
U. S. Application Number 09/163,227	"Transplantation of neural cells for the treatment of ischemic damage due to stroke."

Research Papers

(1) Dinsmore, J. H. and R. D. Sloboda. (1988). Calcium and calmodulin-dependent phosphorylation of a 62kD protein induces microtubule depolymerization in sea urchin mitotic apparatuses. **Cell 53:769-780.**

(2) Dinsmore, J. H. and R. D. Sloboda. (1989). Microinjection of antibodies to a 62kd mitotic apparatus protein arrests mitosis in dividing sea urchin embryos. **Cell 57:127-134.**

(3) Dinsmore, J. H. and R. D. Sloboda. (1989). Identification of a 62kD mitotic apparatus associated protein from sea urchin which is important for the proper progression of mitosis. **Ann. N.Y. Acad Sci. 582:301-303.**

(4) Dinsmore, J. H. and F. Solomon. (1991). Inhibition of MAP2 expression affects both morphological and cell division phenotypes of neuronal differentiation. **Cell 64: 817-826.**

(5) Birgbauer, E., J. H. Dinsmore, B. Winckler, A. D. Lander, and F. Solomon. (1991). Association of ezrin isoforms with the neuronal cytoskeleton. **J. Neurosci. Res. 30: 232-241.**

(6) Stamm, S., D. Casper, J. Dinsmore, C. A. Kaufmann, J. Brosius, and D. Helfman. (1992). Clathrin light chain B: gene structure and neuron-specific splicing. **Nucleic Acids Research. 20(19):5097-5103.**

(7) Detrich H. W., T.J. Fitzgerald, J. H. Dinsmore, and S. P. Marchese-Ragona (1992). Brain and egg tubulins from Antarctic fishes are functionally and structurally distinct. **J. Biol. Chem. 267: 18766-18775.**

(8) Dinsmore, J. H. and F. Solomon. (1993). The use of antisense RNA to inhibit expression of cytoskeletal proteins in P19 embryonal carcinoma cells. **Neuroprotocols 2: 19-23.**

(9) Deacon, T. W., P. Pakzaban, L. H. Burns, J. Dinsmore, and O. Isacson. (1994). Cytoarchitectonic development, axon-glia relationships, and long distance axon growth of porcine striatal xenografts in rats. **Exp. Neurol. 130: 151-167.**

(10) Pakzaban, P., T. W. Deacon, L. H. Burns, J. Dinsmore, and O. Isacson. (1995). A novel mode of immunosuppression of neural xenotransplants: masking of donor major histocompatibility complex class I enhances transplant survival in the CNS. **Neuroscience 65: 983-996.**

(11) Garcia, A. R., T. W. Deacon, J. Dinsmore, and O. Isacson. (1995). Extensive axonal and glial fiber growth from fetal porcine cortical xenografts in the adult rat cortex. **Cell Transplantation 4: 515-527.**

(12) Isacson, O., T. W. Deacon, P. Pakzaban, W. R. Galpern, J. Dinsmore, and L. H. Burns. (1995). Transplanted xenogeneic neural cells in neurodegenerative disease models exhibit remarkable axonal target specificity and distinct growth patterns of glial and axonal fibres. **Nature Medecine 1: 1189-1194.**

(13) Dinsmore, J. H., J. Ratliff, T. H. Deacon, P. Pakzaban, D. Jacoby, W. Galpern, and O. Isacson. (1996). Embryonic stem cells differentiated in vitro as a novel source of cells for transplantation. **Cell Transplantation 5:131-143.**

(14) Dinsmore, J., P. Pakzaban, T. Deacon, L. Burns, W. Galpern, and O. Isacson. (1996). Long-term survival of F(ab')2 masked xenogeneic fetal porcine neural cells after transplantation into brain. **Transplantation Proc. 28:817-818.**

(15) Galpern, W. R., L. H. Burns, T. W. Deacon, J. Dinsmore, and O. Isacson. (1996). Xenotransplantation of porcine fetal ventral mesencephalon in a rat model of Parkinson's disease: functional recovery and graft morphology. **Exp. Neurol. 140:1-13.**

(16) Deacon, T., J. Schumacher, J. Dinsmore, C. Thomas, P. Palmer, S. Kott, A. Edge, D. Penney, S. Kassissieh, P. Dempsey, and O. Isacson. (1997). Histological evidence of fetal pig neural cell survival after transplantation into a patient with Parkinson's disease. **Nature Medecine 3:350-353.**

(17) Dinsmore, J. H., Deacon, T. W., and Isacson, O. (1997). Fetal neural xenografts as a therapy for Parkinson's and Huntington's disease. In **Biotechnology International**, T. H. Connor and C. F. Fox, eds. (San Francisco: Universal Medical Press, Inc.), **pp. 65-72.**

(18) Jacoby, D. B., Lindberg, C., Ratliff, J., Wunderlich, M., Bousquet, J., Wetzel, K., Beaulieu, L., and Dinsmore, J. (1997). Fetal pig neural cells as a restorative therapy for neurodegenerative disease. **Artificial Organs 21:1192-1198.**

(19) Oettinger, H. F., J. A. Sullivan, K. E. Crosby, J. A. Kelley, D. B. Jacoby, J. Dinsmore, A. Zawadzka, and A. S. B. Edge. (1997). "Species-specific detection of porcine xenografts with an antibody against a novel epitope of the lymphocyte homing receptor, CD44." **Xenotransplantation 4: 252-261.**

(20) Dinsmore, J., Ratliff, J., Jacoby, D., Wunderlich, M., and Lindberg, C. (1998). Embryonic stem cells as a model for studying regulation of cellular differentiation. **Theriogenol. 49:145-151.**

(21) Deacon, T., J. Dinsmore, L. C. Constantini, J. Ratliff, and O. Isacson. (1998). Blastula stage stem cells can differentiate into dopaminergic and serotonergic neurons after transplantation. **Exp. Neurol. 149:28-41.**

(22) Lindberg, C., M. Wunderlich, J. Ratliff, J. Dinsmore, and D. B. Jacoby. (1998). Regulated expression of the homeobox gene, rPtx2, in the developing rat. **Dev. Brain Res. 110: 215-226.**

(23) LeBlanc, C. J., T. W. Deacon, B. R. Whatley, J. Dinsmore, L. Lin, and O. Isacson. (1999). Morris water maze analysis of 192-IgG-saporin-lesioned rats and porcine cholinergic transplants to the hippocampus. **Cell Transplantation 8: 131-142.**

(24) Jacoby, D., C. Lindberg, J. Pope, J. Ratliff, M. Cunningham, and J. Dinsmore. (1999). Long-term survival of fetal porcine lateral ganglionic eminence cells in the hippocampus of rats. **J. Neurosci. Res. 56: 581-594.**

(25) Schumacher, J. M., S. L. Ellias, E. P. Palmer, H. S. Kott, J. Dinsmore, P. K. Dempsey, A. J. Fischman, C. Thomas, R. G. Feldman, S. Kassissieh, R. Raineri, C. Manhart, J. S. Fink, and O. Isacson. (2000). Transplantation of embryonic porcine mesencephalic tissue in patients with PD. **Neurology 54: 1042-1050.**

(26) Dinsmore, J., C. Manhart, R. Ranieri, D. Jacoby, and A. Moore. No evidence for transfer of pig endogenous retrovirus from pig fetal neuronal cells to humans or to human cells in vitro. **Transplantation 70: 1382-1389.**

(27) Dinsmore, J., J. Martin, J. Siegan, J. Pope, C. Lindberg, M. Wunderlich, J. Ratliff, and D. B. Jacoby. Equivalence of F(ab')2 treatment of donor cell MHC class I to Cyclosporine in preventing xenograft rejection in the CNS. Transplantation **(Submitted).**

(28) Dinsmore, J., and J. Ratliff. Non-human primate but not human serum lyses pig fetal neural cells in vitro. **(In preparation).**

(29) Pope, J., C. Lindberg, J. Ratliff, M. DiFiglia, D. Jacoby, and J. Dinsmore. Ultrasructural demonstration of porcine fetal neural cells forming synapses with host rat brain neurons. **(In preparation).**

(30) Jacoby, D., C. Lindberg, J. Ratliff, J. Pope, and J. Dinsmore. Cryopreservation of fetal porcine neuronal cells: maintenance of high efficiency engraftment and functional correction in a PD rat model. **(In preparation).**

Reviews and Book Chapters

(1) Dinsmore, J. H. Immunoprivileged sites for allo- and xenotransplantation. In "Xenotransplantation: The transplantation of organs and tissues between species." D. K. C. Cooper, E. Kemp, J. L. Platt, and D. J. G. White (eds.) 2nd ed. Spinger-Verlag, Berlin, pp. 199-205, 1997.

(2) Edge, A. S. B. and J. Dinsmore. 1997. Xenotransplantation in the central nervous system. Xeno 5:23-25.

(3) Dinsmore, J. H. (1998) Treatment of neurodegenerative diseases with neural cell transplantation. Exp. Opin. Invest. Drugs 7:527-534.

(4) Edge, A. S. B., M. Gosse, and J. Dinsmore. 1998. Xenogeneic cell therapy: current progress and future developments of porcine cell transplantation. Cell Transplantation 7: 525-539.

Abstracts

(1) Detrich, H. W., T. J. Fitzgerald, M. Little, J. H. Dinsmore, and R. F. Ludueña. 1987. Assembly and structure of brain and egg tubulins from Antarctic fishes. **J. Cell Biol. 105: 278a.**

(2) Dinsmore, J. H. and R. D. Sloboda. 1987. Identification of a calcium-calmodulin dependent protein kinase associated with the sea urchin mitotic apparatus. **Biol. Bull. 173:564 -565.**

(3) Dinsmore, J. H. and R. D. Sloboda. 1987. Identification of a calcium/calmodulin dependent protein kinase associated with the sea urchin mitotic apparatus. **J. Cell Biol, 105: 284a.**

(4) Dinsmore, J. H. and R. D. Sloboda. 1988. Microinjection of antibodies to a 62kD protein from sea urchin mitotic apparatuses inhibits mitosis in dividing sea urchin embryos. **J. Cell Biol. 107:443a.**

(5) Johnston, J. A., J. H. Dinsmore, and R. D. Sloboda. 1989. Cell cycle abundance and intracellular distribution of a 62kD protein involved in microtubule (MT) stability during mitosis. **J. Cell Biol. 109:87a.**

(6) Dinsmore, J. H. and F. Solomon. 1990. Functional analysis of microtubule-associated protein expression in embryonal carcinoma cells. **J. Cell Biol. 111: 291a.**

(7) Birgbauer, E., J. Dinsmore, and F. Solomon. 1990. Analysis of a cytoskeleton associated component of the growth cone. **J. Cellular Biochem. Suppl. 14F:26.**

(8) Detrich, H. W., T. J. Fitzgerald, J. H. Dinsmore, and S. K. Parker. 1990. Brain and egg tubulin from Antarctic fishes are functionally and structurally distinct. **J. Cell Biol. 111: 412a.**

(9) Birgbauer, E., B. Winckler, J. H. Dinsmore, M. Magendantz, and F. Solomon. 1990. Developmental changes of ezrin association with the cytoskeleton. **J. Cell Biol. 111: 423a.**

(10) Dinsmore, J. H., D. B., Jacoby and J. Ratliff. 1993. Controlled differentiation of embryonic stem cells in vitro. **33rd Annual Meeting of the American Society for Cell Biology, Dec. 11-15, 1993.**

(11) Deacon, T., P. Pakzaban, J. Dinsmore, L. Burns, and O. Isacson. 1993. Axonal growth by fetal porcine striatal grafts in rats. **23rd Annual Meeting of Society for Neuroscience, Nov. 7-12, 1993.**

(12) Burns, L. H., P. Pakzaban, T. W. Deacon, J. Dinsmore, and O. Isacson. 1994. Xenotransplantation of porcine ventral mesencephalic neuroblasts restores function in primates with chronic MPTP-induced Parkinsonism. **24th Annual Meeting. Society for Neuroscience.** Vol. 20: 1330..

(13) Deacon, T., P. Pakzaban, L. Burns, W. Galpern, J. Dinsmore, and O. Isacson. 1994. Target-specific long distance axon growth from porcine striatal and ventral mesencephalon xenografts in rats. **24th Annual Meeting of the Society for Neuroscience, Nov 13-18, 1994.**

(14) Dinsmore, J. H., D. B. Jacoby, and J. Ratliff. 1994. High efficiency differentiation of mouse embryonic stem cells into either neurons or skeletal muscle in vitro. **J. Cell Biochem. 18B(Suppl.): 177.**

(15) Dinsmore, J., P. Pakzaban, T. Deacon, L. Burns, and O. Isacson. 1994. Long term survival of masked xenogeneic fetal porcine neural grafts. **IBC Conference on Xenotransplantation. 16 - 17 June 1994.**

(16) Dinsmore, J. H., P. Pakzaban, T. W. Deacon, J. Ratliff, D. M. Frim, and O. Isacson. 1994. Intracerebral transplantation of neurons differentiated in vitro from pluripotent embryonic stem cells. **24th Annual Meeting of the Society for Neuroscience, Nov 13-18, 1994.**

(17) Isacson, O., T. W. Deacon, P. Pakzaban, L. Burns, W. Galpern, J. Dinsmore, S. Tatter, C. LeBlanc, and J. Park. 1994. Long distance graft growth of astroglial fibers is associated with axonal white matter tracts but not axonal gray matter target zones. **24th Annual Meeting. Society for Neuroscience.** Vol. 20: 9.

(18) Isacson, O., T. W. Deacon, P. Pakzaban, J. Dinsmore, L. H. Burns. 1994. Neuronal replacement in primate and rat models of Huntington Disease: Novel approaches by selective ganglion eminence cell preparations and neural xenotransplantation. **1st Annual Meeting of the American Society for Neural Transplantation, May 5-7, 1994.**

(19) Pakzaban, P., T. W. Deacon, L. H. Burns, J. Dinsmore, and O. Isacson. 1994. Enhanced survival of neural xenografts after masking of donor major histocompatibility complex class I. **24th Annual Meeting. Society for Neuroscience.** Vol. 20: 1708.

(20) Pakzaban, P., T. W. Deacon, L. H. Burns, J. Dinsmore, S. Chappel, and O. Isacson. 1994. The use of porcine fetal neuroblasts as an alternative cell source for neural transplantation. **1st Annual Meeting of the American Society for Neural Transplantation, May 5-7, 1994.**

(21) Dinsmore, J. H., T. Deacon, P. Pakzaban, J. Ratliff, and O. Isacson. 1995. Neurons differentiated in vitro from pluripotent embryonic stem cells for CNS transplantation: in vitro characterization and transplantation into rodents. **2nd Annual Meeting of the American Society for Neural Transplantation. 27-30 April 1995.**

(22) Galpern, W. R., L. H. Burns, T. W. Deacon, S. B. Tatter, J. Dinsmore, and O. Isacson. 1995. Xenotransplantation and antigen masking of fetal porcine ventral mesencephalon in a rat model of Parkinson's disease. **2nd Annual Meeting of the American Society for Neural Transplantation. 27-30 April 1995.**

(23) Dinsmore, J., J. Ratliff, C. Lindberg, M. Wunderlich, D. Jacoby, T. W. Deacon, and O. Isacson. Mouse embryonic stem cells: in vitro differentiation and use for intracerebral transplantation. **Cell and Molecular Treatments for Neurodegenerative Diseases. 7 - 9 Sept. 1995.**

(24) Isacson, O., J. M. Schumacher, J. Dinsmore, T. W. Deacon, W. R. Galpern, P. Pakzaban, L. H. Burns, S. Tatter, D. Penney, S. Kott, P. Palmer, A. Fishman, P. Dempsey. Transplantation of porcine neural cells to restore connections and function in Parkinson's and Huntington's diseases. **Cell and Molecular Treatments for Neurodegenerative Diseases. 7 - 9 Sept. 1995.**

(25) Dinsmore, J., P. Pakzaban, T. Deacon, L. Burns, W. Galpern, and O. Isacson. 1995. Long-term survival of F(ab')2 masked xenogeneic fetal porcine neural cells after transplantation into brain. **Third International Congress for Xenotransplantation. 27 Sept. - 1 Oct. 1995.**

(26) Isacson, O., T. W. Deacon, W. R. Galpern, L. H. Burns, J. Dinsmore, and P. Pakzaban. 1995. Maintained neurotropic specificity in reconstruction of the adult CNS by neural transplants. **25th Annual Meeting. Society for Neuroscience.** Vol. 21: 1756.

(27) Galpern, W. R., L. H. Burns, T. W. Deacon, J. Dinsmore, and O. Isacson. 1995. Xenotransplantation and antigen masking of fetal porcine ventral mesencephalon in a rat model of Parkinson's disease. **25th Annual Meeting. Society for Neuroscience.** Vol. 21:1755

(28) Deacon, T. W., J. Dinsmore, W. Galpern, and O. Isacson. 1995. Embryonic stem cells transplanted to the adult brain: Tyrosine hydroxylase (TH) positive neurons developed spontaneously and by transfection with the human TH gene. **25th Annual Meeting. Society for Neuroscience.** Vol.21: 2028.

(29) Dinsmore, J., J. Ratliff, C. Lindberg, M. Wunderlich, D. Jacoby, T. W. Deacon, and O. Isacson. 1995. Mouse embryonic stem cells: in vitro manipulation and use for intracerebral transplantation. **25th Annual Meeting. Society for Neuroscience.** Vol.21: 2028.

(30) Deacon, T., C. Thomas, J. Dinsmore, E. P. Palmer, D. Penney, S. Kott, P. Dempsey, O. Isacson, and J. Schumacher. 1996. Post-mortem histological characterization of surviving porcine mesencephallic cell suspension xenografts in a parkinsonian patient. **26th Annual Meeting. Society for Neuroscience.** Vol. 22: 318

(31) Jacoby, D. B., C. Lindberg, J. Ratliff, and J. Dinsmore. 1996. Xenogeneic engraftment of porcine fetal lateral ganglionic eminence cells into the rat hippocampus: a potential therapy for epilepsy. **26th Annual Meeting. Society for Neuroscience.** Vol.22: 578.

(32) LeBlanc, C., L. Burns, P. Borghesani, T. Deacon, J. Dinsmore, and O. Isacson. Xenotransplanted cholinergic neurons into models of cognitive dysfunction. **26th Annual Meeting of Society for Neuroscience. 16-21 November 1996.**

(33) Deacon, T., C. LeBlanc, J. Dinsmore, L. Ling, and O. Isacson. (1997). Porcine fetal septal cells implanted into 192-IgG-saporin lesioned rat brain grow cholinergic axons and form synapses in specific hippocampal targets. **27th Annual Meeting. Society for N uroscience.** Vol.23: 347.

(34) Ellias, S. A., E. P. Palmer, et al. (1997). Fetal porcine ventral mesencephalic transplantation for Parkinson's Disease: preliminary results. **Movement Disorders 12: 839-840.**

(35) Siegan, J. B., M. L. Wunderlich, K. Wetzel, J. Bousquet, and J. H. Dinsmore. (1998). Intraspinal transplantation of CNS fetal porcine neurons. **28th Annual Meeting of S ciety for Neuroscience.** Vol. 24: 68.

(36) Dinsmore, J. H., D. Jacoby, S. A. Ellias, E. P. Palmer, H. S. Kott, J. Schumacher, C. Manhart, R. Raineri, A. Moore, J. S. Fink, and G. R. Stewart. 1998. Fetal porcine cell transplantation for the treatment of Parkinson's disease: preliminary clinical safety, efficacy, and PERV test results. **Exp. Neurol. 153: 372.**

(37) Dinsmore, J., C. Lindberg, J. Pope, J. Ratliff, and D. Jacoby. 1998. Cold storage of porcine ventral mesencephalon cells: effects on viability, post-transplantation graft volume, and survival of tyrosine hydroxylase immunoreactive cells. **Exp. Neurol. 153: 373.**

(38) Siegan, J. B., M. L. Wunderlich, and J. H. Dinsmore. 1998. Porcine fetal transplants enhance functional recovery in the spinal cord injured rat. **Exp. Neurol. 153: 378.**

(39) Jacoby, D. B., J. Pope, C, Lindberg, J. Ratliff, and J. Dinsmore. 1998. Histological characterization of porcine neuronal xenografts with species-specific neuronal markers for NF70 and Synaptobrevin. **Exp. Neurol. 153: 380.**

(40) Schachter, S. C., D. L. Schomer, et al. (1998). Porcine fetal GABA-producing neural cell transplants for human partial-onset seizures: safety and feasibility. **Epilepsia 39(Suppl. 6): 67.**

(41) St. Hillaire, M., K. Shannon, et al. (1998). Transplantation of fetal porcine striatal cells in Huntington's disease: preliminary safety and efficacy results. **Neurology 50(suppl. 4): S10.008.**

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(43) Schachter, S. C., D. L. Schomer, and J. H. Dinsmore. GABAergic cell implants for epilepsy. 5th EILAT Conference on new antiepileptic drugs. June 25 - 29, 2000.